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Meditation-Based Lifestyle Modification: Development of an Integrative Mind-Body Program for Mental Health and Human Flourishing

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Keywords
Integrative medicine · Integrative mental health care · Lifestyle modification · Mind-body intervention · Yoga · Patanjali · Meditation · Mantra · Yama · Niyama · Ethics

Abstract
Mental disorders are a core health challenge in the 21st century. Integrative mental health care takes an individual, lifestyle-modifying, salutogenic approach, combining somatic, psychosocial, and spiritual perspectives from evidence-based conventional and complementary medicine. In particular, meditation and mindfulness have received growing research interest in the last decade. In this article, we present Meditation-Based Lifestyle Modification (MBLM), a new, complex mind-body intervention for mental health care. It is the first program to intensify meditation practice using classical yoga. The program (a) covers all areas of classical yoga, (b) considers ethical and spiritual aspects of daily life, (c) orients participants toward sustained lifestyle modification, and (d) is applicable in a clinical context. The scientific rationale of the program is outlined in this article, based on the Criteria for Reporting the Development and Evaluation of Complex Interventions in Healthcare. Further research is planned to show the clinical feasibility of MBLM and evaluate its efficacy, processes of change, and cost-effectiveness.

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Meditationsbasierte Lebensstilmodifikation: Entwicklung eines integrativen Mind-Body-Programms für seelische Gesundheit und eudaimonisches Wohlbefinden

Schlüsselwörter
Integrative Medizin · Integrative psychiatrische Versorgung · Lebensstilmodifikation · Mind-Body-Intervention · Yoga · Patanjali · Meditation · Mantra · Yama · Niyama · Ethik

Zusammenfassung
Psychische Störungen stellen eine der zentralen gesundheitlichen Herausforderungen des 21. Jahrhunderts dar. Eine integrative medizinische Versorgung bietet individuelle, salutogenetische und auf eine Veränderung des Lebensstils ausgerichtete Ansätze, in der somatische, psychosoziale und spirituelle Perspektiven aus der evidenzbasierten Schul- und Komplementärmedizin vereint werden. Dabei haben Meditation und achtsamkeitsbasierte Verfahren insbesondere im letzten Jahrzehnt ein wachsendes Forschungsinteresse erfahren. Die meditationsbasierte Lebensstilmodifikation (MBLM) ist eine neue, komplexe Mind-Body-Intervention für die Versorgung im Bereich seelischer Gesundheit. Es ist das erste

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Therapieprogramm, das Meditation durch die Praxis klassischen Yogas intensiviert. Das Programm umfasst (a) alle wesentlichen Bereiche des klassischen Yogas, (b) berücksichtigt insbesondere ethische und spirituelle Aspekte im täglichen Leben, (c) richtet die Teilnehmer auf eine nachhaltige Veränderung des Lebensstils aus und (d) ist im klinischen Kontext anwendbar. Der wissenschaftliche Hintergrund von MBLM wird in diesem Artikel anhand der Kriterien für die Berichterstattung über die Entwicklung und Bewertung komplexer Interventionen im Gesundheitswesen erläutert. Weitere Forschungsarbeiten zu MBLM sind geplant, um die Durchführbarkeit im klinischen Kontext zu erforschen und die Wirksamkeit, Veränderungsprozesse und Kostenwirksamkeit zu bewerten.

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Introduction

Mental disorders can be regarded as one of the core health challenges of the 21st century. In 2017, around 800 million people were affected by a mental health disorder, with the United States and Western Europe taking the lead [1]. In 2020, depression is estimated to be the second leading cause of world disability and by 2030, it is expected to make the greatest contribution to the overall burden of illness [2]. Similar to the United States [3] and underestimated in the past, every year more than one-third of the total European population suffers from mental disorders. Less than one-third of all cases receive any treatment, suggesting a considerable level of unmet needs [4]. While mental disorders did not play a major role two decades ago, they are today the third most common reason for sick leave or disability. On average, mental illness lasts three times as long as physical illness, and mental disorders are the number one reason for early retirement, with a big impact in terms of disability-adjusted life years and costs to the economy [5].

Hence, the demand for efficacious, safe, acceptable, and cost-effective forms of mental health care is growing. Pharmacotherapy, which is often the first-line treatment of mental disorders, is nowadays associated with growing safety and efficacy concerns [6]. The clinical relevance of more complex molecular and neurobiological explanatory models still needs demonstrating – as does the plausibility of their largely biochemical approach to mental health. Integrative mental health care [6] offers a person-centered, lifestyle-modifying, and more salutogenic approach to treatment, which combines somatic, psychosocial, and spiritual perspectives from evidence-based conventional and complementary medicine. In particular, meditation and mindfulness have received growing interest in the last decade, with numerous studies of these as a stand-alone or adjunct therapy for mental health disorders [7, 8].

Meditation has a variety of positive psychological effects on healthy persons [9, 10], but these effects are less pronounced in people with mental illness, and the average effect size of meditation is similar to that of other forms of nonpharmacological therapy [8]. However, meditation has traditionally not been developed primarily to treat patients (see "Traditional Background"); furthermore, techniques have been fragmented and extricated from their paradigmatic foundations and traditional context. For instance, classical yoga focuses on meditation (and not physical exercise and postures, as often in Western practice), but body-oriented yoga exercises and ethical living are considered necessary for learning meditation [11]. Embedding meditation in a lifestyle-modifying context also makes theoretical and empirical sense, as we will see.

In this article, we describe Meditation-Based Lifestyle Modification (MBLM), a new, complex mind-body intervention for mental health care. To our knowledge, MBLM is the first intervention that intends to intensify and deepen meditation practice by implementing the traditional context of classical yoga. The program (a) covers all areas of classical yoga, (b) considers ethical and spiritual aspects of daily life, (c) orients participants toward sustained lifestyle modification, and (d) is applicable in a clinical context. Before describing MBLM based on the Criteria for Reporting the Development and Evaluation of Complex Interventions in Healthcare [12], we outline some general considerations, its traditional foundations, and its theoretical basis. We also present a short review of empirical findings addressing each component of the intervention.

Background

MBLM has been designed as a mind-body therapy for patients with mental disorders. Influenced by classical yoga and Ayurvedic medicine, it implements ethical conduct, a healthy lifestyle, and mantra meditation to promote physical, mental, and spiritual health as well as human flourishing.

Besides its holistic approach, its noninvasiveness, and its potentially preventive character, MBLM follows all other major principles of naturopathic medicine [13]: participants are educated in understanding physical and mental processes related to their well-being in an accessible yet profound way. Through daily routine of ethical principles, diet, yoga exercises, relaxation, and meditation, patients are meant to be empowered to modify these processes intentionally and learn to trust in the body's natural healing capacity with this guidance. MBLM seeks

to restore conditions for health on all levels of being, rather than focusing on dysfunctions and symptoms.

Subjective well-being is often understood as a mainly hedonic concept, where life satisfaction comes about by maximizing positive affect and minimizing negative affect. MBLM emphasizes eudaemonia [14, 15], a principle going back to Aristotle, where one lives in accordance with one's *daimon*, or "true nature," in order to reach the highest of all goods achievable by human action. Core dimensions of eudaemonic well-being, e.g., self-acceptance, autonomy, personal growth, purpose in life, positive relationships, and control over one's environment, are also emphasized in the philosophical framework of yoga and traditional Indian medicine [16], which form the foundation of MBLM. The focus is on virtues, meaning in life and self-realization, and the aim to fully integrate these into one's own life.

Traditional Background

MBLM was developed on the basis of philosophical assumptions and practices that are common to measures of health-promotion and spiritual development in classical yoga and/or Ayurvedic medicine. Both are traditional systems of medicine in India with official recognition and integration into the national health care system [17].

Ayurvedic medicine, with its origins more than 3,000 years ago in India, still plays a major role as a traditional healing method and is increasingly recognized internationally in research and clinical applications [18]. Similar to holistic healing systems of China and ancient Greece, Ayurvedic medicine offers a holistic model of a macro- and microcosm comprising body and psyche, in which imbalances can be identified and harmonized [19]. The model in Ayurvedic medicine is called *tridosha*. It consists of three regulatory mechanisms, which can be understood on a cellular level [20] in terms of kinetics (*vata*), metabolism (*pitta*), and anabolism (*kapha*). These are accessible phenomenologically in terms of physical constitution, behavior, cognition, and emotion. Individualized dietary and lifestyle recommendations can be derived from the primary goal of balancing these regulatory mechanisms and are part of classical Ayurvedic diagnostics and treatment [21–23].

Yoga is an ancient Indian mind-body practice with the goal of spiritual growth, for which physical and mental health is a logical side benefit [24, 25]. Classical yoga (also referred to as *Raja yoga* or *Ashtanga yoga*), one of the four main paths of yoga practice, has a strong emphasis on meditation, where the main goal is stilling the mind as a prerequisite of self-realization [11, pp. 10–27]. The "self" refers to "the innermost conscious self, loosely equivalent to the soul in Western Greco-Abrahamic traditions" [11, p. xvii]. Unlike Western dualism the dichotomy in yoga philosophy is not stated between body and mind, but between self, or pure consciousness, and inert matter, which is anything in the world which has a form, including the mind [11, p. liii]. To realize pure consciousness can be seen as a general goal of liberation-seeking thought in the Indian tradition [11, p. xlvi].

In the *triguna* model [16], which complements the Ayurvedic *tridosha* model, three constituting qualities of the world (*gunas*) also reflect states of the mind: purity and wisdom (*sattva*), activity and passion (*rajas*), and ignorance and inertia (*tamas*). While all three qualities are constituents of the mind, its natural state is purity and wisdom, which leads to silence of the mind. The goal of yoga practice is therefore to promote the self-realizing capabilities of the mind by increasing *sattva* and decreasing *tamas* and *rajas*. This is traditionally achieved through continuous exercise of ethical living, physical postures, breath control, and meditation [26]. In the *yoga sutras*, an authoritative composition of yoga practice written between the 200 BCE and 500 CE, these exercises were systemized into a comprehensive eight-limbed path of classical yoga [27]: (1) restraints from actions, words, or thoughts that may cause harm (*yamas*), (2) virtuous behaviors and observances (*niyamas*), (3) physical posture (*asana*), (4) control of breath (*pranayama*), (5) control of senses (*pratyahara*), (6) concentration (*dharana*), (7) meditation (*dhyana*), and (8) absorption (*samadhi*). The *yoga sutras* received wide attention among yoga practitioners and have been commented on by many scholars [11, 28, 29].

As the Methods section shows, MBLM simplifies the eight-fold path of classical yoga to three domains (Fig. 1): Ethical Living (*yama* and *niyamas*), Healthy Lifestyle (*asanas*, *pranayama*, and Ayurvedic lifestyle recommendations), and Mantra Meditation (as an accessible technique for *pratyahara*, *dharana*, *dhyana*, and *samadhi*).

Theoretical Background of Classical Yoga

A framework integrating the mechanisms of action in classical yoga has been proposed by Gard et al. [30] in terms of self-regulation, which is an important focus of contemporary psychotherapy to reduce interpersonal distress and promote well-being. The authors describe the practice of classical yoga as multicomponent top-down and bottom-up processes that facilitate self-regulation. Similar to our approach in MBLM, they group together yoga's process tools into ethics, postures, breath regulation, and meditation. Top-down processes include goal setting with respect to the ethical aspects within the yoga system and attentional tasks to observe and change one's behaviors in relation to these goals. Bottom-up processes include neuropsychological processes during physical postures, breathing exercises, and meditation. In their model, yoga practice regulates stress responses by activating high-level brain networks that inhibit negative appraisal, emotional reactivity and rumination, and low-

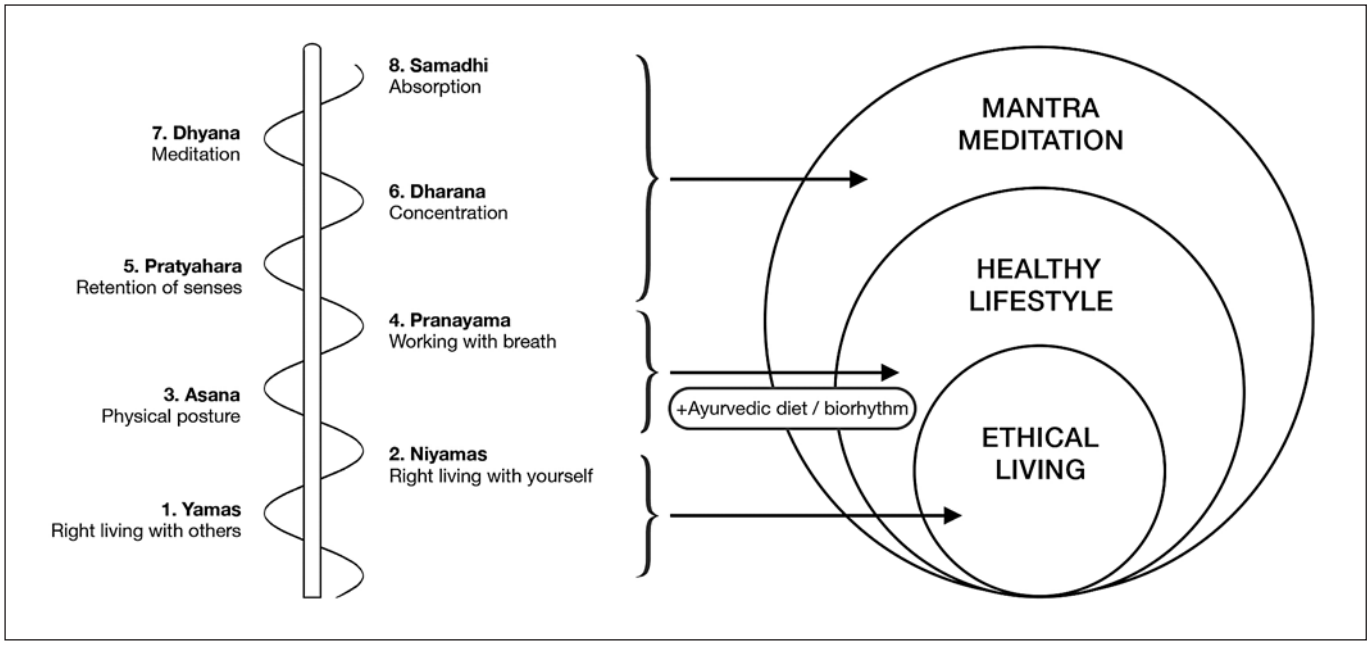

Fig. 1. Projection of the eight-limbed path of classical yoga (left) onto the MBLM program (right). MBLM, Meditation-Based Lifestyle Modification.

level brain networks that inhibit vasoconstriction/pulmonary constriction, inflammation, muscle tension, and pain. With continued practice, these regulatory pathways are thought to become more automatized and lead to an adapted stress response with increased ethical behavior, well-being, and improved physical function.

Sullivan et al. [31] propose an explanatory framework for yoga therapy that is rooted in its ethical and philosophical aspects from the viewpoint of phenomenology, eudaemonia, virtue ethics, and first-person ethical enquiry. In this model, illness leads to an altered experience of body, mind, and environment which cause suffering. First-person inquiry, informed by the ethical and philosophical foundations of classical yoga, may then lead to intentional reorientation of identity, meaning, and purpose in life. Postures, breath regulation, and meditation in the context of eudaemonic well-being are thought to alleviate physical and mental suffering.

In a more recent work, Sullivan et al. [32] propose a translational model of self-regulation and resilience that converges with polyvagal theory [33]. Here, parallels are drawn between the *gunas* and the neural platforms of polyvagal theory in terms of their role in manifesting physical, psychological, and behavioral changes. According to the authors, yoga practice may promote accessibility of the ventral vagal complex and strengthen the foundation of its counterpart, *sattva guna*, which again is associated with eudaemonic well-being.

In summary, these frameworks attempt to explain the functions of components of classical yoga with contemporary theories, taking into account the ethical and philosophical aspects. This makes theory-driven dismantling studies possible – but the synergistic effects of the yoga components still have to be evaluated in complex interventions [30].

Empirical Findings: A Short Review

During the last two decades, growing attention has been paid to the effects of yoga and meditation practices on physical and mental health [7, 8, 26, 34]. There is now strong evidence that yoga can be effective as a therapy for different psychiatric disorders [35]. In this short review, we focus on empirical findings related to the three domains of MBLM.

Ethical Living and Mental Health. Most research on yoga focuses on postures, breathing techniques, and meditation [36]. In a bibliometric analysis of randomized controlled trials (RCTs) of yoga published between 1975 and 2014, only 32 of 312 yoga RCTs included philosophy lectures [34]. Only three of these trials [37–39] mentioned the ethical aspects of yoga called *yamas* and *niyamas* explicitly, while in the remaining studies, philosophy lectures covered different topics or their content was not reported. Experts advocate that yoga should be practiced in its entirety, including its ethical aspects [35]. Especially for mental health conditions, the cultivation of positive values, attitudes, and behaviors has been recommended [40]. In yoga philosophy, these are the five *yamas* (nonviolence, truthfulness, non-stealing, non-excess, and non-greed) and the five *niyamas* (purity, contentment,

self-discipline, self-study, and dedication) [41]. Similar values and practices are found in many religious traditions and secular organizations [42]. The role of value-related behavior in mediating well-being is well known in psychotherapy and has become increasingly popular in recent years, e.g., in acceptance and commitment therapy [43]. In a qualitative study by Kishida et al. [44] the *yamas* and *niyamas* were seen as a contributing factor for improving self-care and relational patterns. A quantitative study by Smith et al. [45] found that a complex yoga intervention which explicitly included the ethical aspects of practice was more effective in alleviating anxiety-related symptoms and salivary cortisol than body-related yoga alone.

Healthy Lifestyle and Mental Health. The Healthy Lifestyle domain in MBLM comprises postural yoga, breathing exercises, and simple dietary and lifestyle recommendations from Ayurvedic medicine. Meta-analyses of RCTs on depression [46, 47], anxiety disorders [48], and schizophrenia [49] have shown promising results for the efficacy of yoga on depression and anxiety levels. For anxiety disorders, the results remained inconclusive, and in the treatment of schizophrenia, the results showed only unspecific positive effects. Due to the small number of studies included in these condition-specific reviews, it was difficult to analyze the differential effects of yoga on mental disorders. A recent meta-analysis of the efficacy on specifically body-oriented yoga [50] showed a large total effect of $g = 0.91$ for complementary yoga intervention groups compared to inactive control groups in terms of symptom-related outcome measures. The mental health conditions included in this analysis were depression (5 studies), schizophrenia (3 studies), anxiety disorders, alcohol addiction, insomnia, posttraumatic stress disorder (PTSD), and binge eating disorder. In comparison to active control groups, body-oriented yoga showed a significant, small total effect in favor of the yoga intervention ($g = 0.26$) in schizophrenia (5 studies), PTSD (2 studies), insomnia, alcohol addiction, substance addiction, compulsive disorder, and depression. Overall, the included studies were heterogenous and had a comparatively high risk of bias, in particular with regard to the blinding of patients or staff. Despite these limitations, the authors conclude that body-oriented yoga centered on *asanas* and *pranayama* is a promising complementary approach to treating mental disorders. In addition to the relatively low costs associated with group yoga, unlike pharmacological treatment, it has few risks or side effects [46] and can be easily integrated into everyday life [50]. Ayurvedic medicine has been discussed as a useful supplement to psychiatric treatment [51], where an individualized, dietary regime represents a basic principle for a health-promoting lifestyle [52]. Research on the efficacy of Ayurvedic diet is still scarce, but lifestyle and nutritional counseling have successfully been used to treat stress-related diseases and psychosomatic conditions [21, 22, 53] and to promote health [54]. Robust diurnal rhythms, which are fundamental to Ayurvedic lifestyle, are known to alleviate metabolic diseases and improve sleep quality [55]. Vice versa, balance of the *doshas* can predict sleep quality [56].

Mantra Meditation and Mental Health. Meditation in general can be understood as a pool of various techniques of attention regulation and/or a nonjudgmental, nondiscursive thought process to disengage from habitual patterns of the mind, providing means of self-regulation and transformed consciousness [57]. Mantra meditation, the key component of MBLM, includes practices in which repeating a word or a sentence is at the center of the meditation technique [7]. Nowadays, mantra meditation is a common meditation technique in the United States [58], with a range of different implementations. While some mantra meditation programs which have been adopted to Western culture by using secular mantras or by claiming words used in mantras are meaningless (e.g., relaxation response, clinically standardized meditation, transcendental meditation [7]), mantra meditation remains a traditionally spiritual meaningful practice. Classical definitions of mantra include statements like "a mantra is mystical energy encased in a sound structure" [59], which convey strong faith in the transforming effect of mantra itself. Teachings may also include rituals like passing the mantra to the student or embedding its use and content in a philosophical or religious context. Experienced meditators state that just technically repeating a mantra without devotion, feeling, and cultivation of it is of little use [60, 61]. Since secular meditation techniques grew out of spiritual traditions, it is possible that some of the beneficial effects of secular meditation may be rooted in spirituality [62]. A comprehensive review of studies on spirituality and health has shown that the majority of the research conducted to date has found a positive relationship between spirituality and both mental and physical health [63]. According to Koenig's model of spirituality and health, spiritual practices and experiences – like meditation or prayer – mediate positive psychological traits that in turn affect emotions, cognitions, behavior, and coping styles, which may lead to better mental health. Across different studies, spiritually framed mantra meditation had a greater impact than the secular forms of mantra meditation on psychological outcomes, pain tolerance, and variables associated with spiritual experience [64–66]. Mantra meditation is also a spiritual part of Ayurvedic psychotherapy to remove the negative conditioning of the mind [67, pp. 223–231]. Diversity in the technique of mantra meditation is also reflected in the way of how a mantra is actually used: along with active or passive breathing [7], as repetition during daily activities, or sit-

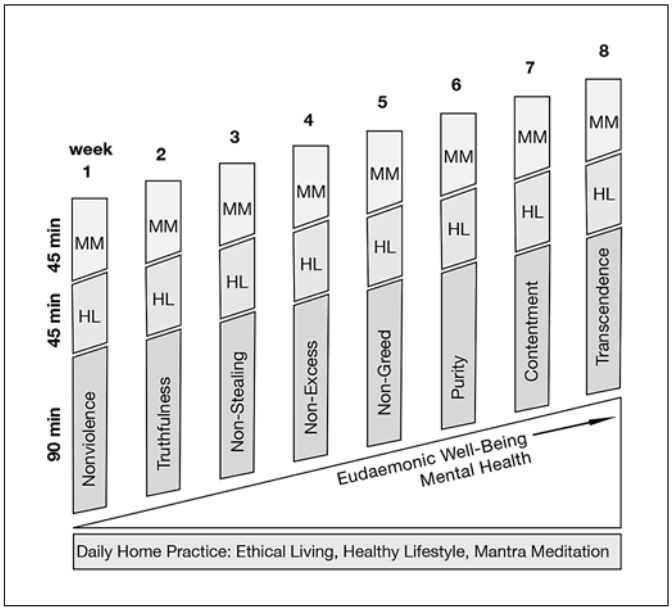

Fig. 2. MBLM is an 8-week course with weekly sessions, each module covering three domains: (1) Ethical Living, (2) Healthy Lifestyle (HL), and (3) Mantra Meditation (MM). Topics within the Ethical Living domain change every week as described in the figure. Weekly sessions are accompanied by a daily routine involving all domains of MBLM. As proposed in "Theoretical Background of Classical Yoga," MBLM practice is meant to facilitate eudaemonic well-being and mental health. MBLM, Meditation-Based Lifestyle Modification.

ting still with eyes closed [68], and with strong concentrative focus on repeating the mantra or emphasis on effortless, increasingly subtle repetition, where the mantra eventually fades away into silence [69]. Regarding efficacy, a meta-analysis by Sedlmeier et al. on the psychological effects of meditation in healthy populations indicated medium average effects (r = 0.27), and comparatively strong effects for transcendental meditation (a mantra meditation technique) were found in increasing self-realization and reducing negative emotions, state and trait anxiety, and neuroticism [9, 10]. These results could not be explained by mere relaxation or effects of cognitive restructuring. Mantra meditation has also been shown to increase eudaemonic well-being in terms of increasing *sattva guna* (e.g., harmonizing mind and body) [66, 70]. The literature on the effects of mantra meditation on mental health in clinical populations is still sparse and most of these clinical trials are characterized by insufficient methodological quality [7, 8, 71]. Due to the heterogeneity of mantra meditation, no reliable statements can yet be made about its clinical efficacy. One exception is the comprehensive work by Bormann et al. [68, 72–74], demonstrating positive health effects of the spiritual Mantram Repetition Program in veterans suffering from PTSD.

Methods

MBLM consists of three domains: Ethical Living, Healthy Lifestyle, and Mantra Meditation. Compared to previous trends in yoga research and application, explicit training in ethical aspects is emphasized and, together with body-oriented yoga exercises and lifestyle recommendations, lay the foundation for meditative practice. MBLM is an 8-week course with weekly modules of group sessions and daily home practice (Fig. 2). Prior to the course, attendees participate in an introductory session where they are encouraged to identify a clear motivation for participating. They receive simple recommendations on diet and daily rhythm tailored to their constitutional and individual needs and learn the technique of mantra meditation. They also receive written material, including information about the program, a manual for the body-oriented yoga exercises, background information on Ayurvedic nutritional recommendations, a comprehensive manual of mantra meditation, and a translation of the complete yoga sutras by Patanjali. The introductory class can take place individually or in small groups.

The following sections summarize the practical implementation of the MBLM modules as group sessions. Each of the modules covers all three MBLM domains. Instructors should be practitioners themselves and have teaching experience in each of the domains. Preferably, they should be licensed mental health therapists or at least be well acquainted and experienced with the type of clients attending the program. A detailed description of the intervention with specific objectives of each domain and additional details on the underlying rationale is shown in the supplementary material (for all online suppl. material, see www.karger.com/doi/10.1159/000512333).

Ethical Living

Group sessions begin with the Ethical Living domain (online suppl. Table S1), which consists of 8 weekly topics and specific, daily mindfulness exercises developed from the *yamas* and *niyamas* of yoga philosophy.

In the first part, participants have the opportunity to share their experiences following the exercises related to the previous week's topic, their yoga and meditation practice, their diet, and daily routine. The therapist should actively act in an encouraging, optimistic, and supportive manner. Inspired by positive psychology [75], the therapist should encourage participants to fully recognize what is already good and affirm their individual potential. Another essential aspect of sharing is that participants can learn from each other and relate their own experiences to those of others.

In the second part, the instructor introduces the new topic. Each week, one of the ten *yamas* and *niyamas* is introduced, with the last three *niyamas* (self-discipline,

self-study, and dedication) grouped together in one module called "Transcendence." This is done to save time in the clinical context, but also makes it easier to leave out too specialized philosophical and theistic aspects of the yoga system.

The therapist presents the topic and the participants receive written material on key aspects of it, covering application in daily life, yoga practice, and meditation. Examples are given from everyday life (e.g., for non-violence, different forms of violence like "thinking negatively about myself," "saying bad things about others," or "yelling at someone else" are presented and their motivational background is discussed).

The therapist prompts participants to ask questions, to find examples from their own experience, and to discuss them within the group. For the following week, participants receive a worksheet with suggested mindfulness exercises related to the week's topic to deepen understanding (e.g., for non-violence, these are exercises such as "Today I do not criticize, today I praise others and even myself" or "Today I make sure not to exceed my physical limits; when I feel fatigue or pain, I take a break"). Participants should be encouraged to choose whether and how they want to implement the ethical aspects in their life. For a detailed list of all topics and exercises, see online supplementary Table S5 and online supplementary Figure S1.

Healthy Lifestyle

In the second part, group sessions continue with body-oriented yoga exercises (see online suppl. Table S2). Recommendations for daily rhythm and diet were communicated individually in the introductory session and are addressed in the feedback rounds if necessary.

Exercises start with *ujjayi* breathing in a sitting posture. *Ujjayi* is a common technique of slow, deep breathing with partial closure of the glottis, creating airway resistance to stimulate parasympathetic afferents [30, 76], and has been implemented in several yoga studies [53, 77, 78]. This mode of breathing should then be maintained throughout the yoga postures to support the flow of movements and self-awareness during the practice.

Postures in classical yoga are designed to prepare the body so that it does not distract the mind when sitting in meditation [11, p. 284]. For MBLM, a fixed sequence of gentle exercises suitable for depression and anxiety has been composed by a yoga expert [40]. All exercises have been selected to allow safe practice at home without further guidance. The exercises are adjusted to the participants' individual physical limitations and levels of agility. During the lesson, all positions are modeled by the therapist; the week's topic (e.g., non-violence) is emphasized and enlivened through the exercises. As time allows, the sequence is repeated several times, with the focus shifting from fine-tuning physical orientation to a fluid exercise in consonance with breath. The sequence ends with a deep relaxation exercise in a lying position.

Mantra Meditation

The third part of each group session is the Mantra Meditation domain (see online suppl. Table S3). Mantra meditation is the central technique of MBLM for several reasons. First, it is a concentrative technique, which may help shift the focus from cognitive or emotional patterns of distress to more positive content, which is especially helpful in clinical populations. Focusing on a mantra while letting other thoughts, emotions, or sensations pass may be seen as a diffusion technique, which can be helpful in regulating emotions and controlling impulses [79]. Second, mantra meditation is "portable" [73] and can be brought to consciousness with little effort during daily activities to cope with distress or adverse symptoms as they arise. Third, mantra meditation is mentioned in the *yoga sutras* as a meditation technique [11, p. 105] and covers the last four limbs of classical yoga at different levels of meditative experience.

During meditation, participants are encouraged to sit in an upright posture on a chair or a meditation cushion and silently recite their mantra, which they have chosen and learned in the introductory session. Due to the potential benefits of spiritual mantras, mantras from a variety of traditions are available for selection (see online suppl. Table S6). A mantra should be pleasant-sounding, compatible with one's personal beliefs, and easy to remember. The mantra should be recited inwardly with focused attention on the sound rather than its meaning. However, appreciation of the mantra's meaning and belief in it may act as a catalyst for meditative practice [65]. Recitation should not be mechanical as attention shapes relational and experiential aspects of the mantra, which could be devotional if applicable for the reciter. Pace and intensity of recitation is chosen freely. Synchronization with the breath is not part of the technique, but may occur spontaneously or at will. Arising thoughts should not be judged or followed. Rather, when the mind wanders, reciters should make an active attempt to return to the mantra. These instructions relate to retraction of the senses from outward sensory input (*pratyahara*) and to focused attention [80] on the mantra (*dharana*). With growing meditation practice, concentration on the mantra may become increasingly receptive, sustained, and effortless [80]. This represents the state of meditation in classical yoga (*dhyana*). Eventually, the mantra as external object fades away and a state of absorption ("being one with the mantra") may be experienced (*samadhi*). As an optional technique, participants may visualize a symbol (*yantra*) along with recitation of their mantra to combine inner auditory and inner visual concentration. For a

portfolio of symbols the participants can choose from, see online supplementary Figure S2.

After meditation, participants are encouraged to share their experiences and instructors give support in learning and refining the technique. The week's topic is meant to infuse the discussion (e.g., in non-violence, not to use force to return to the mantra when the mind wanders).

Home Exercises

Home-based practice is integral to the course and instructors should focus on supporting participants to establish a daily routine (online suppl. Table S4). A practice of 20–30 min (each) of yoga and meditation is recommended. A fixed time is preferable, as is doing the physical yoga exercises and meditation in one session. In addition to sitting meditation, participants are encouraged to use their mantra for self-regulation throughout the day when they experience distress or other adverse symptoms. The mindfulness exercises related to the week's topic are applied in everyday life and do not require a dedicated practice time, although participants are encouraged to use the diary provided with the worksheets to track their experiences.

Interactions

The content and composition of the MBLM domains and modules are naturally correlated and interact. Each group session implements the basic structure of the eightfold path of classical yoga, gradually silencing the mind in stages. The Ethical Living domain is intended to be the foundation of eudaemonic well-being, which helps participants reduce destructive intra- and interpersonal behavioral patterns. This process promotes self-actualization and refinement of perception. It lays the ground for the mental attitude to perceive the contents of the Healthy Lifestyle module not just as gymnastic exercises and dietary restrictions, but as refining the body and mind [11, p. lxviii] for a higher goal. Concentration on body and breath, physical stretches, and relaxation prepare participants for sitting still in meditation posture. Meditation trains mental faculties such as equanimity, concentration, sensitivity to mental processes, and differentiation [9]. This contributes to differentiating and spiritualizing [81] the understanding of the other domains and supports inner transformation toward living a value-oriented life [43].

Repetition, overlap, and transfer of content between domains and modules are interactions intended to reinforce learning. Repetition in each group session and home practice enables continuous refinement and internalization. The contents of the Ethical Living modules naturally overlap or interrelate (e.g., non-violence is a common factor in all other modules, contentment is an inner aspect of non-greed). Ethical aspects are transferred and explained in the Healthy Lifestyle and Mantra Meditation modules, as described earlier.

Finally, sharing experiences and receiving feedback from instructors and/or other participants is important for reflecting on one's own experiences in all domains of MBLM.

Applications

MBLM has been developed in a context of contemporary, integrative mental health care. Due to the traditionally different goals of meditative practice and mental health care, tensions naturally arise which require adjustment. One of the most obvious adjustments is complexity and intensity of practice. Both had to be reduced dramatically to fit into clinical care and to make theory and practice of classical yoga as a system of meditation accessible. MBLM does not require previous experience in yoga or meditation. Patients with mild to moderate physical restrictions should be able to participate with minor modification of the yoga exercises. The program focuses on ameliorating depressive and anxious symptoms, as these are prevalent in most patients in mental health care. Like all mind-body programs, MBLM is not suitable for everybody, as it requires openness to the approach and a sufficient degree of intrinsic motivation. As inhibition of drive is common in depression, the course has been highly structured to support patients to establish a daily practice at home. In its present form, MBLM is aimed at outpatients with mild to moderate mood or anxiety disorders, but simple to adapt to other contexts and conditions.

Discussion

We have outlined the theoretical rationale, empirical basis, and implementation of MBLM, a novel mind-body intervention for mental health care based on classical yoga and influenced by Ayurvedic medicine.

To the best of our knowledge, MBLM is the first modular intervention for mental health care to explicitly cover all aspects of classical yoga and emphasize meditation based on ethical living and a healthy lifestyle to promote eudaemonic well-being, sustained mental health, and human flourishing.

Because of its multidimensional and modular structure, it is easy to make adjustments in intensity, duration, and weighting of the components according to the specific needs of other populations. The program can be tailored to the needs of each individual. This makes MBLM eligible for use to prevent mental illness and relapse and

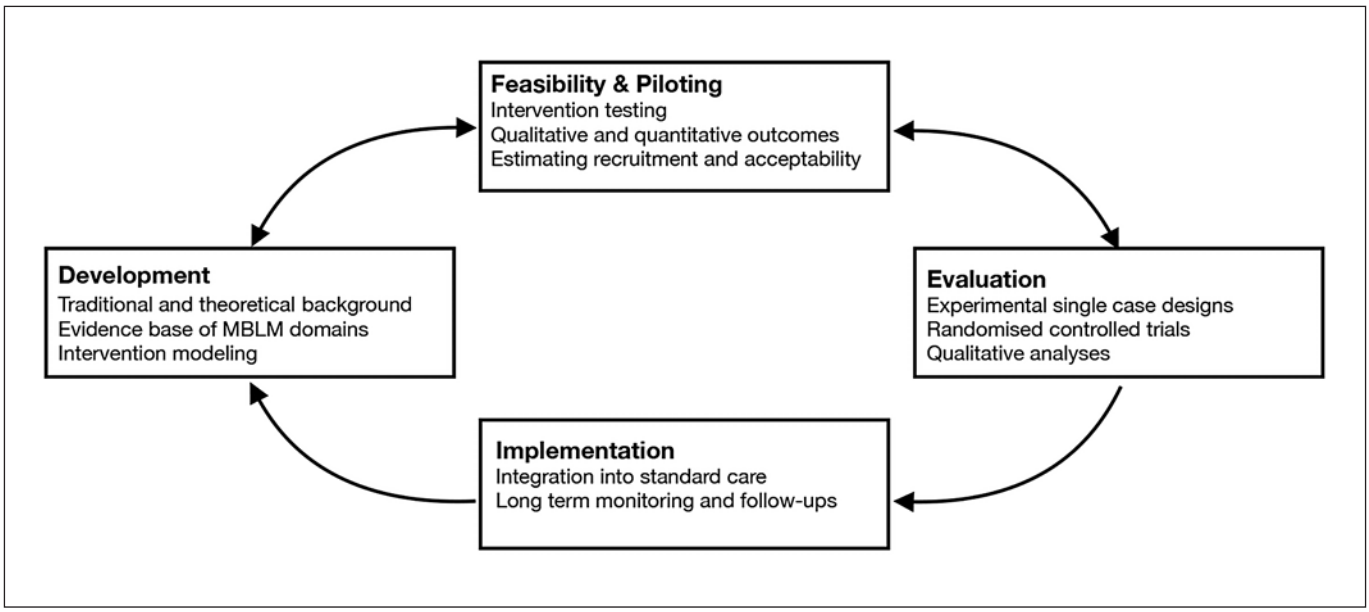

Fig. 3. In order to advance MBLM in clinical application and scientific evaluation, it will be tested in a stepwise approach, starting with a series of pilot studies aimed at feasibility and process evaluation. Adapted from Craig et al. [84], in a report prepared on behalf of the Medical Research Council, UK, giving guidance on the development, evaluation, and implementation of complex interventions to improve health. MBLM, Meditation-Based Lifestyle Modification.

to treat psychological comorbidities in patients with chronic somatic illness. Future modifications could include an internet-based application to support long-term adherence [82].

Several limitations of MBLM need to be discussed. The complexity and intensity of classical yoga practice have been reduced to fit into clinical care and integration into participants' daily lives. The format of the successful mindfulness-based stress reduction courses [83] has served as a model here. Like mindfulness-based stress reduction, we consider MBLM an intensive program that can act as a catalyst for lifestyle change and as a starting point for a deeper consideration and integration of classical yoga as a way of living. Extensive written reference material and simple, repetitive practices during the course are meant to support this process. Nevertheless, classical yoga is a way of living with the long-term goal of self-realization, and the lasting effects of an 8-week course should not be overestimated. Most likely, participants will need further support to advance in their practice.

Another limitation could be limited acceptance of the ethical and spiritual framework proposed by MBLM. However, since classical yoga shares common human moral values and is not dogmatic with regard to its theistic interpretation [11, p. 81], its contents can be well adapted for all belief systems. It is important for therapists to remember that spiritual and philosophical contents need to be conveyed in a strictly nondogmatic and nonsectarian way, focusing on generally accepted core values, leaving open individual interpretative contexts.

Lastly, prioritizing mantra meditation is an interpretation of classical yoga practices that is not explicated in the *yoga sutras*. In "Mantra Meditation" we have introduced several advantages of mantra meditation in a clinical context and have argued why it can cover the meditative stages of classical yoga.

To develop the MBLM program as a complex intervention in mental health care, further research has to show its feasibility for clinically important populations and to evaluate its efficacy, processes of change, and cost-effectiveness (Fig. 3). Pilot trials in different populations, qualitative analyses, and a dismantling trial to analyze the mechanism of action of MBLM components are in progress (see ClinicalTrials.gov identifiers NCT03652220, NCT04089618, and NCT04252976 for more information).

Conflict of Interest Statement

The authors declare that they have no conflict of interest.

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Author Contributions

H.C. Bringmann and N. Bringmann conceptualized and developed MBLM. A. Michalsen and S. Brunnhuber supervised its application in the clinical setting. P. Sedlmeier supervised the project. M. Jeitler contributed to the critical analysis of the concept and to reporting standards. H.C. Bringmann wrote the first draft of the manuscript. All authors worked on the final version of the manuscript.

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